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10/597,491	07/27/2006	Gary Sigai	US040082	1821

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EXAMINER

LEE, BRENTIRA M

ART UNIT	PAPER NUMBER
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4176

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/597,491	Applicant(s) SIGAI ET AL.	
	Examiner BRENITRA M. LEE	Art Unit 4176	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 July 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 July 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>27 July 2006</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This office Action is in response to the Applicant's communication filed on 27 July 2006. In virtue of this communication, claims 1-13 are currently presented in the instant application.

Domestic Priority

1. Applicant's claim for the benefit of a prior-filed application under 35 U.S.C. 119(e) is acknowledged.

Information Disclosure Statement

2. The Information Disclosure Statement filed on 27 July 2006 is in compliance with 37 C.F.R. 1.97. Accordingly, the Information Disclosure Statement is being considered by the examiner.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
4. Claim 7 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 7 recites the limitation "the precoat layer" in line 2. There is insufficient antecedent basis for this limitation in the claim. Clarification is required.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-3, 5 and 10 are rejected under 35 U.S.C. 102(e) as being anticipated by Jansma (U.S. Patent 6,992,432 B1).

With respect to claim 1, Jansma discloses in Fig. 1 an electric lamp which comprises a lamp envelope having an inner surface, means within the lamp envelope for generating ultraviolet radiation (Col. 1, lines 58-61), and a layer of a luminescent material on said inner surface comprising a phosphor derived from a mixture of a cool-white calcium halophosphate, a red-emitting yttrium oxide (YOX), a green-emitting cerium, terbium lanthanum phosphate (LAP), and a blue-emitting europium-activated barium magnesium hexa-aluminate (BAM) (Col. 3 lines 30-31 and lines 43-54).

With respect to claim 2 and 3, Jansma et al. discloses a lamp as claimed in claim 1, wherein a cerium,terbium magnesium hexa-aluminate (CAT) component, or a cerium, terbium, gadolinium pentaborate (CBT) component is substituted for the green-emitting (LAP) component and a divalent europium-activated chloro-strontium, calcium, barium phosphate (SCA) component, or a divalent europium activated strontium chlorophosphate (apatite) (SCAP) component is substituted for the BAM component (Col. 3 lines 43-54).

With respect to claim 5, Jansma discloses in Fig. 1 a low pressure low-mercury consumption mercury vapor fluorescent lamp, comprising a tubular, light transmissive lamp envelope having opposing sealed ends, an inner tubular surface and enclosing a discharge space between said sealed ends with a volume (Col. 1, lines 58-62), a filling of elemental mercury and a rare gas (Col. 2, lines 47-50), a pair of discharge electrodes each

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arranged at a respective sealed end of said lamp envelope (Col. 2, lines 41-45), means for connecting said discharge electrodes to a source of electric potential outside of said lamp envelope, whereby during lamp operation a gas discharge is maintained between said discharge electrodes, which gas discharge emits ultraviolet radiation (Col. 2, lines 52-55), optionally, a first, light transmissive and ultraviolet radiation reflecting layer disposed adjacent said inner surface of said lamp envelope (Col. 2, lines 33-34), and a layer of a luminescent material comprising a phosphor derived from a mixture of a cool-white calcium halophosphate, a red-emitting yttrium oxide (YOX), a green-emitting cerium, terbium lanthanum phosphate (LAP), and a blue-emitting europium-activated barium magnesium hexa-aluminate (BAM) (Col. 3, lines 43-54).

With respect to claim 10, Jansma discloses A phosphor blend for low-mercury consumption fluorescent lamps which comprises a mixture of a cool-white calcium halophosphate, a red-emitting yttrium oxide (YOX), a green-emitting cerium, terbium lanthanum phosphate (LAP), and a blue-emitting europium- activated barium magnesium hexa-aluminate (BAM) (Col. 3 lines 30-31 and lines 43-54).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were

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made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 4, 6-8, and 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jansma (U.S. Patent 6,992,432 B1) in view of Jin et al. (U.S. Patent 6,400,097 B1).

With respect to claim 4 and 6-7, Jansma discloses all of the claimed limitations as expressly recited in claim 1 and 5, except for the weight percentage of each said phosphor and a conductive semiconductor layer of tin oxide being applied as a starting aid between the inner surface and the precoat layer.

Jin et al. discloses said phosphor comprises from about 85 wt% to about 96 wt% of a cool-white calcium halophosphate, from about 1.6 to about 5.8 wt% of a red-emitting yttrium oxide (YOX), from about 1.7 to about 6.5 wt% of a green-emitting cerium, terbium lanthanum phosphate (LAP), and from about 0.7 to about 2.7 wt% of a blue-emitting europium-activated barium magnesium hexa-aluminate (BAM) (Col. 3 lines 19-22 and lines 25-28). Jin et al further discloses a conductive semiconductor layer of tin oxide is applied as a starting aid between the inner surface and the precoat layer (Col. 4, lines 17-19).

Jin et al. further discloses that the weight percentage can be combined in preferred ratios to yield a pre-selected lamp color and predetermined color temperature.

Furthermore, it is not inventive to discover the optimum or workable ranges by routine

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experimentation where the general conditions of a claim are disclosed in the prior art (see MPEP 2144.05). Therefore, to form the lamp of Jansma with the specific weight percentage ratios as taught by Jin et al for a low mercury consumption and long-life characteristics would have been deemed obvious to a person skilled in the art.

With respect to claim 8, Jansma discloses in Figure 1, a low-mercury consumption mercury vapor fluorescent lamp, comprising a tubular, light transmissive lamp envelope having opposing sealed ends, an inner tubular surface and enclosing a discharge space between said sealed ends with a volume (Col. 1, lines 58-62), a filling of elemental mercury and a rare gas (Col. 2, lines 47-50), a pair of discharge electrodes each arranged at a respective sealed end of said lamp envelope (Col. 2, lines 41-45), means for connecting said discharge electrodes to a source of electric potential outside of said lamp envelope, whereby during lamp operation a gas discharge is maintained between said discharge electrodes, which gas discharge emits ultraviolet radiation (Col. 2, lines 52-55), e. optionally, a first, light transmissive and ultraviolet radiation reflecting pre-coat layer disposed adjacent said inner surface of said lamp envelope (Col. 2, lines 33-34). Jansma does not disclose the conductive semiconductor layer being of tin oxide as the starting aid and the phosphor blend for the layer of luminescent material.

Jin et al. discloses a conductive semiconductor layer of tin oxide applied as a starting aid between the inner surface and the precoat layer; and (Col. 4, lines 17-19), a layer of a luminescent material comprising a phosphor derived from a mixture comprising from about 85 wt% to about 96 wt% of a cool-white calcium halophosphate, from about 1.6 to about 5.8 wt% of a red-emitting yttrium oxide (YOX), from about 1.7 to about 6.5 wt% of a green-emitting cerium, terbium lanthanum phosphate (LAP), and

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from about 0.7 to about 2.7 wt% of a blue-emitting europium-activated barium magnesium hexa-aluminate (BAM) (Col. 3 lines 19-22 and lines 26-28).

Jin et al. further discloses that the weight percentage can be combined in preferred ratios to yield a pre-selected lamp color and predetermined color temperature. Furthermore, it is not inventive to discover the optimum or workable ranges by routine experimentation where the general conditions of a claim are disclosed in the prior art (see MPEP 2144.05). Therefore, to form the lamp of Jansma with the specific weight percentage ratios as taught by Jin et al for a low mercury consumption and long-life characteristics would have been deemed obvious to a person skilled in the art.

With respect to claim 11, Jansma discloses all the claimed limitations as expressly recited in claim 10, except the phosphor weight percentage ratios. Jin et al. discloses A phosphor blend as claimed in claim 10, wherein said phosphor comprises a mixture of from about 85 wt% to about 96 wt% of a cool-white calcium halophosphate, from about 1.6 to about 5.8 wt% of a red-emitting yttrium oxide (YOX), from about 1.7 to about 6.5 wt% of a green-emitting cerium, terbium lanthanum phosphate (LAP), and from about 0.7 to about 2.7 wt% of a blue-emitting europium-activated barium magnesium hexa-aluminate (BAM) (Col. 3 lines 19-22 and lines 25-28).

Jin et al. further discloses that the weight percentage can be combined in preferred ratios to yield a pre-selected lamp color and predetermined color temperature. Furthermore, it is not inventive to discover the optimum or workable ranges by routine experimentation where the general conditions of a claim are disclosed in the prior art (see MPEP 2144.05). Therefore, to form the lamp of Jansma with the specific weight

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percentage ratios as taught by Jin et al for a low mercury consumption and long-life characteristics would have been deemed obvious to a person skilled in the art.

With respect to claim 12 and 13, the combination of Jansma and Jin et al. discloses all the claimed limitations as expressly recited in claim 11, however, Jin et al. does not disclose the substitution of the phosphors. Jansma disclose the cerium,terbium magnesium hexa-aluminate (CAT) component, or a cerium, terbium, gadolinium pentaborate (CBT) component is substituted for the green-emitting (LAP) component (Col. 3, lines 43-54) and a divalent europium-activated chloro-strontium, calcium, barium phosphate (SCA) component, or a divalent europium activated strontium chlorophosphate (apatite)(SCAP) component is substituted for the BAM component (Col. 3, lines 43-54).

Jin et al. further discloses that the weight percentage can be combined in preferred ratios to yield a pre-selected lamp color and predetermined color temperature. Furthermore, it is not inventive to discover the optimum or workable ranges by routine experimentation where the general conditions of a claim are disclosed in the prior art (see MPEP 2144.05). Therefore, to form the lamp of Jansma with the specific weight percentage ratios as taught by Jin et al for a low mercury consumption and long-life characteristics would have been deemed obvious to a person skilled in the art.

7. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jansma (U.S. Patent 6,992,432 B1) in view of Jin et al (U.S. Patent 6,400,097 B1), as applied to claim 8 above, and further in view of Itaya et al. (U.S. Patent 6,583,543 B1).

The combination of Jansma and Jin et al. discloses all the claimed limitations as expressly recited in claim 8, except for the envelope being convoluted and bent to desired shape.

Itaya et al. discloses in Fig. 3 the envelope is convoluted and is selected from the group of envelopes comprising at least two leg segments joined by a bent-U section, and envelopes bent to a desired shape (Col 3 lines 54-63).

It would have been obvious of one of ordinary skill in the art at the time of the invention to modify the combination of Jansma and Jin et al. by arranging the envelope in the shapes as taught by Itaya et al. to form a low-mercury consumption fluorescent lamp.

Citation of Relevant Prior Art

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Mori et al. (U.S. Patent 6,459,197) discloses a fluorescent lamp that includes a phosphor layer containing a blue phosphor, a green phosphor and a red phosphor;

Jin et al. (U.S. Patent 6,583,566 B1) discloses a low-wattage mercury vapor discharge lamp. The lamp has a discharge sustaining full of mercury and an inert gas mixture of krypton and argon that does not require a starting aid; and

Soules et al. (U.S. Patent 5,944,572) discloses a low pressure mercury vapor discharge lamp having a non-straight glass envelope and a plurality of rare earth phosphor layers coated inside the glass envelope.

Inquiry

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BRENITRA M. LEE whose telephone number is

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(571)270-7552. The examiner can normally be reached on Monday-Thursday 7:30 am - 6:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thuy V. Tran can be reached on 571-272-1828. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/BRENITRA M. LEE/
Examiner, Art Unit 4176

/Thuy Vinh Tran/
Supervisory Patent Examiner, Art Unit 4176